

Package ‘clusEvol’

July 22, 2025

Type Package

Title A Procedure for Cluster Evolution Analytics

Version 1.0.0

Date 2024-02-19

Maintainer Víctor Morales-Oñate <victor.morales@uv.cl>

Description Cluster Evolution Analytics allows us to use exploratory what if questions in the sense that the present information of an object is plugged-in a dataset in a previous time frame so that we can explore its evolution (and of its neighbors) to the present. See the URL for the papers associated with this package, as for instance, Morales-Oñate and Morales-Oñate (2024) <<https://mpra.ub.uni-muenchen.de/120220>>.

Depends R (>= 4.1.0)

License GPL (>= 3)

Encoding UTF-8

Imports ggplot2,plotly,cluster,fpc,viridis,clusterSim,dplyr

Repository CRAN

URL <https://github.com/vmoprojs/clusEvol>

BugReports <https://github.com/vmoprojs/clusEvol/issues>

LazyData true

NeedsCompilation no

Author Víctor Morales-Oñate [aut, cre] (ORCID:
<<https://orcid.org/0000-0003-1922-6571>>),
Bolívar Morales-Oñate [aut] (ORCID:
<<https://orcid.org/0000-0003-4980-8759>>)

Date/Publication 2024-02-26 18:50:02 UTC

Contents

actpas	2
clusEvol	2
plot.clusEvol	4
pwt1001	5

Index	6
-------	---

actpas	Assets and liabilities operations
--------	-----------------------------------

Description

Ecuador’s amount of Assets and Liabilities Operations of the National Financial System: <https://contenido.bce.fin.ec/home1/e>

Usage

actpas

Format

A dataframe containing 358 observations and 25 columns.

References

Morales-Oñate, V., and Morales-Oñate, B. (2024). *Cluster Evolution Analytics*. <https://mpraub.uni-muenchen.de/120220/>

clusEvol	clusEvol
----------	----------

Description

clusEvol is a function that allows us to use exploratory what if questions in the sense that the present information of an object is plugged-in a dataset in a previous time frame so that we can explore its evolution (and of its neighbours) to the present.

Usage

```
clusEvol(x=NULL,objects=NULL, time = NULL,target.vars = NULL,
        time.base=NULL,sel.obj=NULL,init = NULL,logscale = FALSE,
        ng = NULL,clm = "pam",scale=TRUE,clstats = FALSE,...)
```

Arguments

x	Dataframe. panel data input.
objects	Character; variable name of objects.
time	Character; variable name of time .
target.vars	Character; selected variables for Cluster Evolution Analytics (CEA).
time.base	Numeric; selected time for CEA.
sel.obj	Character; selected object for CEA.

<code>init</code>	Numeric; initiation time.
<code>logscale</code>	Logical; TRUE if data should be logscaled.
<code>ng</code>	Numeric; number of desired clusters.
<code>clm</code>	Character; (pam,kmeans,choose).
<code>scale</code>	Logical; TRUE if data is scaled in clm.
<code>clstats</code>	Logical; TRUE if cluster statistics should be returned.
<code>...</code>	Parameters used in 'clm' method.

Details

clusEvol can be synthesized has the following steps

- Identify clusters to which `sel.obj` is similar in `time.base` - The data of `sel.obj` in `time.base` is plugged-in in each time period. - Clusters are generated in each time period with data from `sel.obj` in `time.base`.

Value

Returns an object of class `clusEvol`. An object of class `clusEvol` is a list containing at most the following components:

<code>datos</code>	clean input data;
<code>target.vars</code>	selected variables;
<code>results</code>	data frame of neighbours of <code>sel.obj</code> ;
<code>Eck</code>	clusters that <code>sel.obj</code> belongs to;
<code>EckTot</code>	all clusters that <code>sel.obj</code> belongs to;
<code>Clus</code>	dataframe objects, cluster and time.
<code>sumdat</code>	summary statistics of <code>datos</code> .
<code>kmodelSol</code>	output of clustering algorithm in each iteration.
<code>clusterStats</code>	cluster statistics in each clustering.
<code>sl</code>	evolution in time with <code>target.vars</code> included (subset of <code>Clus</code> but only for <code>sel.obj</code>).
<code>sel</code>	input variable names of objects in time.
<code>sel.obj</code>	input character of selected object.

Author(s)

Víctor Morales Oñate, <victor.morales@uv.cl>, <https://sites.google.com/site/moralesonatevictor/>, <https://www.linkedin.com/in/vmoralesonate/> Bolívar Morales Oñate, <bmoralesonate@gmail.com>, <https://sites.google.com/site/moralesonatevictor/>

References

Morales-Oñate, V., and Morales-Oñate, B. (2024). *Cluster Evolution Analytics*. <https://mpra.ub.uni-muenchen.de/120220/>

Examples

```
library(clusEvol)
data(actpas)

solclusEvol <- clusEvol(x=actpas,objects="razon_social",
  time = "fecha",target.vars = c("montoAct","operAct"),
                        time.base=max(actpas$fecha),
                        sel.obj="BANCO SOLIDARIO S.A.",init = min(actpas$fecha),
                        logscale = TRUE,ng = 5,clm = "pam")

print(solclusEvol)
```

plot.clusEvol	<i>Plot output results from clusEvol</i>
---------------	--

Description

Plot density or empirical cumulative distribution from Bvals in [clusEvol](#) output.

Usage

```
## S3 method for class 'clusEvol'
plot(x,target,type = "heat",plotly=FALSE,...)
```

Arguments

x	an object of the class "clusEvol"
target	Numeric; 1 if density, 2 if ecdf plot is returned
type	Character; heat (default), line, boxplot are the options
plotly	Logical; if FALSE, a ggplotly plot is returned
...	other arguments to be passed to the function ggplot

Details

This function plots outputs from clusEvol taking into account its panel data structure.

Value

Produces a plot. No values are returned.

See Also

[clusEvol](#) for procedure and examples.

pwt1001*Penn World Table (Version 10.01)*

Description

Relative levels of income, output, input, and productivity for 183 countries between 1950 and 2019 (base year: 2017).

Usage

pwt1001

Format

A data frame with 12,810 observations of 52 variables.

Details

The Penn World Table 10.01 (<<https://www.rug.nl/ggdc/productivity/pwt/>>) provides information on relative levels of income, output, input, and productivity for 183 countries between 1950 and 2019.

References

Morales-Oñate, V., and Morales-Oñate, B. (2024). *Cluster Evolution Analytics*. <https://mpra.ub.uni-muenchen.de/120220/>

Index

- * **Cluster Evolution Analytics**

- clusEvol, [2](#)

- * **clusEvol**

- plot.clusEvol, [4](#)

- * **datasets**

- actpas, [2](#)

- pwt1001, [5](#)

actpas, [2](#)

clusEvol, [2](#), [4](#)

ggplot, [4](#)

plot.clusEvol, [4](#)

pwt1001, [5](#)